

Appendix A

RWSP Treatment Plant Policies

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A. Explanatory material. The treatment plant policies are intended to guide the county in providing treatment at its existing plants and in expanding treatment capacity through the year 2030. The policies direct that secondary treatment will be provided to all base sanitary flows. The county will investigate possible tertiary treatment with a freshwater outfall to facilitate water reuse. The policies also direct how the county will provide the expanded treatment capacity necessary to handle the projected increases in wastewater flows resulting from population and employment growth. The policies provide for the construction of a new treatment plant (the Brightwater treatment plant) to handle flows in a new north service area, expansion of the south treatment plant to handle additional south and east King County flows and the reservation of capacity at the west treatment plant to handle Seattle flows and CSOs. The potential for expansion at the west and south treatment plants will be retained for unanticipated circumstances such as changes in regulations. The policies address goals for odor control at treatment plants and direct that water reuse is to continue and potentially expand at treatment plants.

Treatment Plant Policies	How implemented in 2004–2006
<p>TPP-1: King County shall provide secondary treatment to all base sanitary flow delivered to its treatment plants. Treatment beyond the secondary level may be provided to meet water quality standards and achieve other goals such as furthering the water reuse program or benefiting species listed under the ESA.</p>	<p>The county's regional treatment plants, West Point and South plants, are activated sludge secondary plants. The Vashon Treatment Plant is an oxidation ditch secondary treatment plant.</p> <p>Some of the secondary effluent at the West Point and South treatment plants undergoes disinfection and advanced treatment to be reused for on-site landscaping and in-plant processes. In addition, some of the reclaimed water produced at South plant is distributed in the summer months off-site for irrigation purposes.</p> <p>In 2006, construction began on the Brightwater Treatment Plant and the Carnation Treatment Plant. Both treatment plants will use membrane bioreactor technology (MBR), which will result in treated wastewater that is seven to ten times cleaner than typical secondary treatment.</p> <p>The Department of Natural Resources and Parks (DNRP) continues to monitor and work with agencies and organizations, such as the Washington State Department of Ecology (Ecology) and the Puget Sound Partnership on issues relating to water quality standards, reclaimed water goals, and activities to benefit species listed under the federal Endangered Species Act.</p>
<p>TPP-2: King County shall provide additional wastewater treatment capacity to serve growing wastewater needs by constructing the Brightwater treatment plant at the Route 9 site north of the city of Woodinville and then expanding the treatment capacity at the south treatment plant. The west treatment plant shall be maintained at its rated capacity of one</p>	<p>Construction on the Brightwater Treatment System began in 2006; the project is on schedule for completion in 2010.</p> <p>A South Plant capacity and re-rating evaluation was completed in 2004. Updated population projections (2003 Puget Sound Regional Council forecast by traffic analysis zone) and a 10 percent water</p>

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<p>hundred thirty-three mgd. The south treatment plant capacity shall be limited to that needed to serve the eastside and south King County, except for flows from the North Creek Diversion project and the planned six-million-gallon storage tank, or minor rerating to facilitate south or east county growth. The potential for expansion at the west treatment plant and south treatment plant should be retained for unexpected circumstances which shall include, but not be limited to, higher than anticipated population growth, new facilities to implement the CSO reduction program or new regulatory requirements.</p> <p><i>(This policy was amended by Ordinance 15602 in September 2005—replacing “north treatment plant” references to “Brightwater” and adding information about minor re-rating to South Plant.)</i></p>	<p>conservation assumption by 2010 were then applied to update flow projections to South plant. Based on these projections, and available capacity at South plant, taking into account the on-line date for Brightwater, it is projected that South plant will have capacity until 2023, at which point re-rating of unit processes could be implemented to provide additional capacity instead of doing a major expansion at that time. Expansion would then occur in 2029 as originally planned.</p> <p>The county will continue to review future updated population projections and water conservation assumptions. Based on future information, the projected dates for re-rating or expansion of South plant could change.</p>
<p>TPP-3: Any changes in facilities of the west treatment plant shall comply with the terms of the West Point settlement agreement.</p>	<p>The county continues to comply with the West Point Settlement Agreement.</p> <p>A significant provision of the agreement was completed in March 2006, when the King County Council approved Ordinance 15391, authorizing payment of \$5.3 million to the City of Seattle in satisfaction of Section 1(d) of the agreement. This section requires the county to investigate alternative technologies that have the potential to remove digesters from the West Point Treatment Plant site, and if no alternatives could be implemented by December 31, 2005, King County agreed to pay an amount established via the agreement to the City of Seattle for deposit in the city’s Shoreline Park Improvement Fund. <i>(See Chapter 2 for more details.)</i></p>
<p>TPP-4: King County’s goal is to prevent and control nuisance odor occurrences at all treatment plants and associated conveyance facilities and will carry out an odor prevention program that goes beyond traditional odor control. To achieve these goals, the following policies shall be implemented:</p> <ol style="list-style-type: none"> 1. Existing treatment facilities shall be retrofit in a phased manner up to the High/Existing Plant Retrofit odor prevention level as defined in Table 1 of Attachment A to Ordinance 14712, the odor prevention policy recommendations dated March 18, 2003. This level reflects what is currently defined as the best in the country for retrofit treatment facilities of a similar size. Odor prevention systems will be employed as required to meet the goal of preventing and controlling nuisance 	<p>TPP-4.1: The Wastewater Treatment Division (WTD) is undertaking the following phased improvements at West Point and South treatment plants:</p> <ul style="list-style-type: none"> • Changes to the division channel ventilation system at West Point were completed in 2005. Modifications to the odor scrubber system were completed in early 2007. WTD will evaluate the effects of these improvements through 2008 to determine if they meet the odor control goal for existing facilities. • At South Treatment Plant, the final design of covers for each first pass of the four aeration basins and for the return activated sludge channel was completed in 2005. Installation of the covers began in 2006 and is expected to be completed by the end of 2007.

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<p>odor occurrences;</p> <p>2. Existing conveyance facilities that pose nuisance odor problems shall be retrofitted with odor prevention systems as soon as such odors occur, subject to technical and financial feasibility. All other existing conveyance facilities shall be retrofitted with odor control systems during the next facility upgrade;</p> <p>3. The executive shall phase odor prevention systems implementing the tasks that generate the greatest improvements first, balancing benefit gained with cost, and report to the council on the status of the odor prevention program in the annual RWSP report as outlined in K.C.C. 28.86.165;</p> <p><i>(sub-section 3 was amended by Ordinance 15384, which directed the executive to include the report on the odor prevention program in RWSP annual reports)</i></p> <p>4. New regional treatment facilities shall be constructed with odor control systems that are designed to meet the High/New Plant odor prevention level as defined in Table 1 of Attachment A to Ordinance 14712, the odor prevention policy recommendations dated March 18, 2003. This level reflects what is currently defined as the best in the country for new treatment facilities of a similar size;</p> <p>5. New conveyance facilities serving these new regional treatment facilities shall also be constructed with odor control systems as an integral part of their design;</p> <p>6. Design standards will be developed and maintained for odor control systems to meet the county's odor prevention and control goals;</p> <p>7. A comprehensive odor control and prevention monitoring program for the county's wastewater treatment and conveyance facilities will be developed. This program shall include the use of near facility neighbor surveys and tracking of odor complaints and responses to complaints and shall consider development of an odor prevention benchmarking and audit program with peer utilities; and</p> <p>8. New odor prevention and measurement technologies will be assessed and methods for pilot testing new technologies identified when determined by the executive to be necessary and appropriate for achieving the goals of this policy</p>	<p>TPP-4.2: Table 2.1 in Chapter 2 lists the improvements WTD is undertaking in the county's existing conveyance facilities.</p> <p>TPP-4.3: The schedule for phased improvements follows this direction. RWSP annual reports include a status of the odor prevention program.</p> <p>TPP-4.4: The Brightwater Treatment Plant's odor control system is being designed to meet the "best in the country for new facilities" level, described in Attachment A to Ordinance 14712. Brightwater's odor control system includes biological, chemical, and carbon odor scrubber stages.</p> <p>TPP-4.5: The Brightwater conveyance system's design includes odor control systems.</p> <p>TPP-4.6: WTD is using the design standard that was developed in 2002 for the county's odor control systems.</p> <p>TPP-4.7: The <i>Odor and H₂S Corrosion Control Plan</i> was completed in late 2006. Surveys of businesses and residents that are near-neighbors of the treatment plants are carried out on an annual basis and provide feedback on odor sources and process improvements that have reduced odor impacts. In addition, WTD has procedures in place to log, investigate, and track all odor complaints. A summary report of yearly odor complaints is provided in RWSP annual reports (see Appendix N).</p> <p>WTD consults with peer utilities on information related to odor control technologies, lessons learned, and information sharing.</p> <p>TPP-4.8: Biological odor scrubbers (bioscrubbers) were pilot tested at the South Treatment Plant in 2005 and resulted in the adoption of the technology for the Brightwater Treatment Plant.</p>

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<p>TPP-5: King County shall undertake studies to determine whether it is economically and environmentally feasible to discharge reclaimed water to systems such as the Lake Washington and Lake Sammamish watersheds including the Ballard Locks.</p>	<p>The water reuse work plan that was submitted to the King County Council in December 2000 determined such a discharge will not need to be considered for at least 10 years.</p>
<p>TPP-6: The county shall evaluate opportunities in collaboration with adjacent utilities regarding the transfer of flows between the county's treatment facilities and treatment facilities owned and operated by other wastewater utilities in the region. The evaluation shall include, but not be limited to, cost environmental and community impacts, liability, engineering feasibility, flexibility, impacts to contractual and regulatory obligations and consistency with the level of service provided at the county owned and operated facilities.</p> <p><i>(Ordinance 15602 amended this policy to make the policy read clearer, there were no changes to the intent of the policy.)</i></p>	<p>No new opportunities were presented in 2004–2006 regarding transfer of flows between the county's treatment facilities and treatment facilities owned and operated by other wastewater utilities in the region.</p> <p>King County and the City of Edmonds continue to transfer wastewater flows between systems in accordance with their interlocal agreement.</p>
<p>TPP-7: King County may explore the possibility of constructing one or more satellite treatment plants in order to produce reclaimed water. The county may build these plants in cooperation with a local community and provide the community with reclaimed water through a regional water supply agency. In order to ensure integrated water resource planning, in the interim period prior to the development of a regional water supply plan, King County shall consult and coordinate with regional water suppliers to ensure that water reuse decisions are consistent with regional water supply plans. To ensure costs and benefits are shared equally throughout the region, all reclaimed water used in the community shall be distributed through a municipal water supply or regional water supply agency consistent with a regional water supply plan.</p> <p><i>(Ordinance 15602 amended this policy to include the words "a municipal water supply or" in the last sentence.)</i></p>	<p>The King County Council decided to cancel the Sammamish Valley Reclaimed Water Project as part of the 2005 budget ordinance (Ordinance 15083) in favor of developing capabilities of the Brightwater system to produce and distribute reclaimed water, now known as the Brightwater reclaimed water backbone.</p> <p>A regional water supply plan has not been developed. The county continues to consult and coordinate with water utilities on reclaimed water projects and opportunities.</p>
<p>TPP-8: King County shall continue water reuse and explore opportunities for expanded use at existing plants, and shall explore water reuse opportunities at all new treatment facilities.</p>	<p>WTD has been safely using reclaimed water since 1997 at the South and West Point plants.</p> <p>When operational, reclaimed water from the Carnation Treatment Plant will be used to enhance a wetland in the county's Chinook Bend Natural Area.</p> <p>In November 2005, the King County Council approved Phase 1 of the Brightwater reclaimed water pipeline,</p>

Appendix A. Treatment Plant Policies and Implementation in 2004-2006

Treatment Plant Policies	How implemented in 2004–2006
	also known as the Brightwater backbone, as part of WTD's 2006 budget. Potential reclaimed water opportunities from this portion of the Brightwater backbone include uses for parks and businesses in Bothell, Woodinville, Redmond, and other cities in the area, as well as farms, parks, and businesses in the Sammamish Valley.
<i>(Ordinance 15602 deleted policies TPP-9 and TPP-10, which referred to the Brightwater siting process. The siting process was completed in December 2003.)</i>	
